

GaAs MMIC Power Amplifier Chip, 8-12 GHz

Performance characteristics

- Frequency range: 8 - 12GHz
- Small signal gain: 24.5dB
- Gain Flatness: ± 1.0 dB
- P -1 dB : 27.5dBm
- Psat : 28dBm
- Power supply: +8 V /135mA
- 50Ohm input / output
- Chip size: QFN 5X5

Product Introduction

GPA-0812A-CQ5 is a broadband amplifier based on GaAs technology , with a frequency range of 8GHz~12GHz, a small signal gain of 24.5dB, and a Psat output of 28dBm. GPA-0812A-CQ5 is powered by a +8V power supply. This chip uses a 5 x 5 mm ceramic surface mount package, which can achieve airtight packaging. The surface of the pin pad is gold-plated, which is suitable for reflow soldering installation process.

Use limit parameters

Maximum drain voltage	+12V
Maximum gate bias	-3V
Maximum input power	+25dBm
Operating temperature	-55 ~ +85°C
Storage temperature	-65 ~ +150°C

Exceeding any of these maximum limits may cause permanent damage.

Electrical performance parameters (TA = +25°C , Vd =+8V)

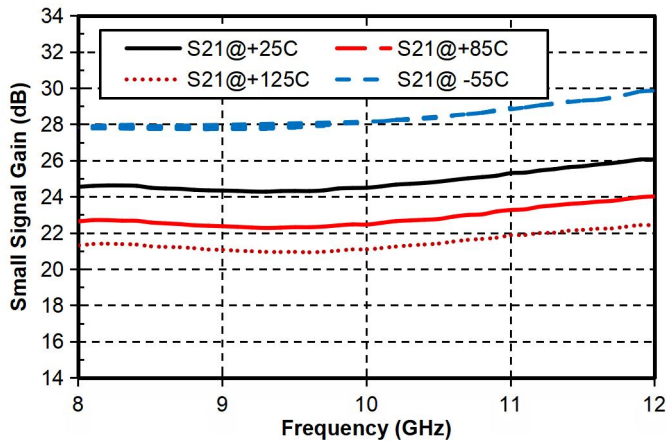
Index	Minimum	Typical Value	Maximum	Unit
Frequency Range	8-12			G Hz
Small Signal Gain	-	24.5	-	dB
Gain Flatness		± 1.0		dB
P -1dB	-	27.5	-	dBm
Psat	-	28	-	dBm
Input return loss	-	17	-	dB
Output return loss	-	13	-	dB
Quiescent Current		135		mA

* By tuning the Vg terminal voltage from -2V to 0V , the recommended Vg terminal voltage is -0.7V .

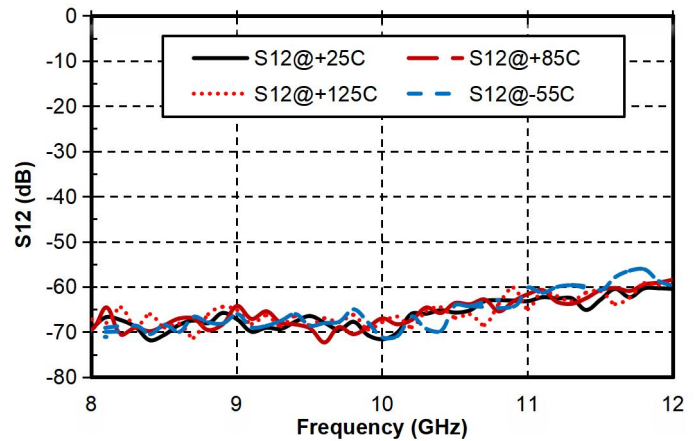
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Main index test curve

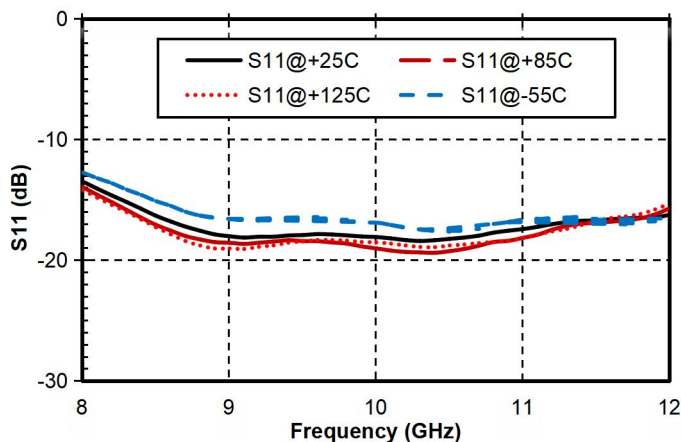
Gain vs. Frequency



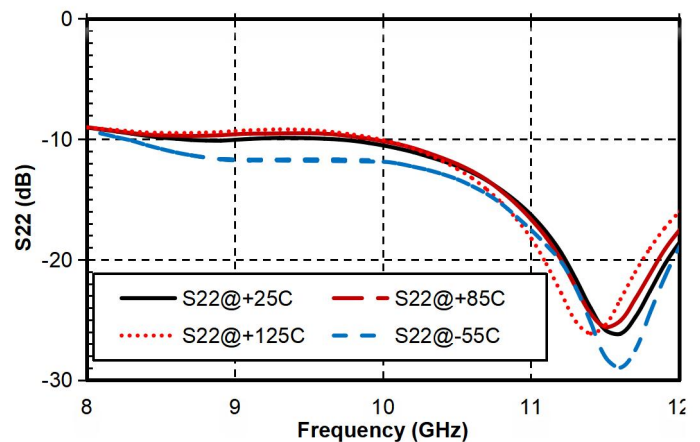
Reverse Isolation vs. Frequency



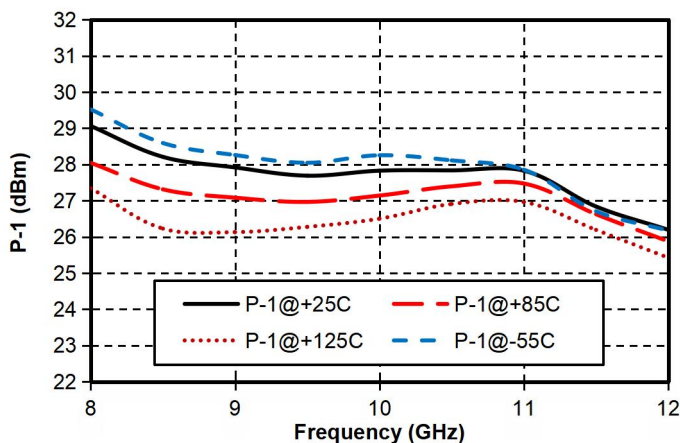
Input Return Loss vs. Frequency



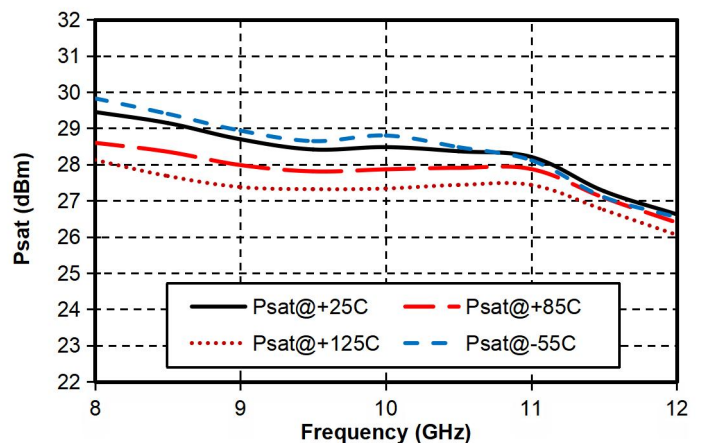
Output Return Loss vs. Frequency



P-1dB vs. Frequency

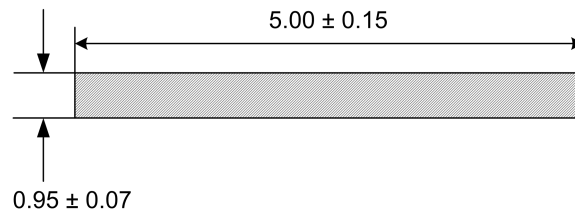
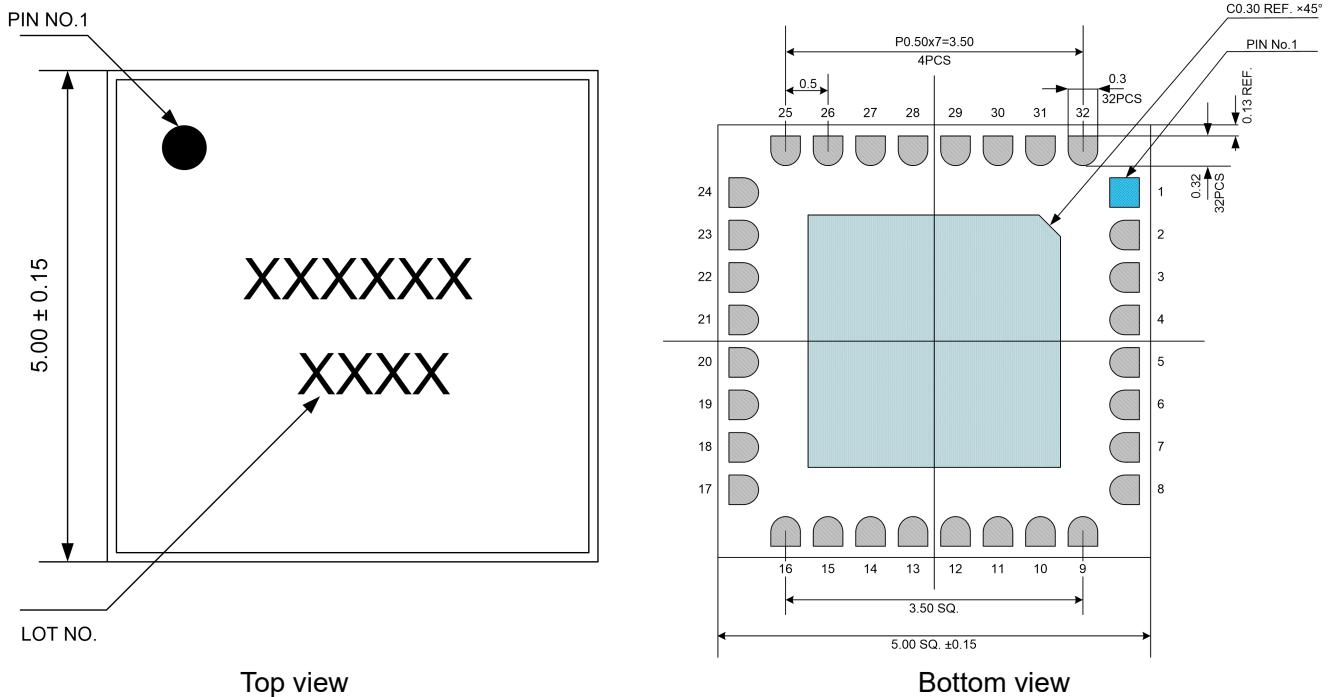


P sat vs. frequency



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Appearance structure



Side View

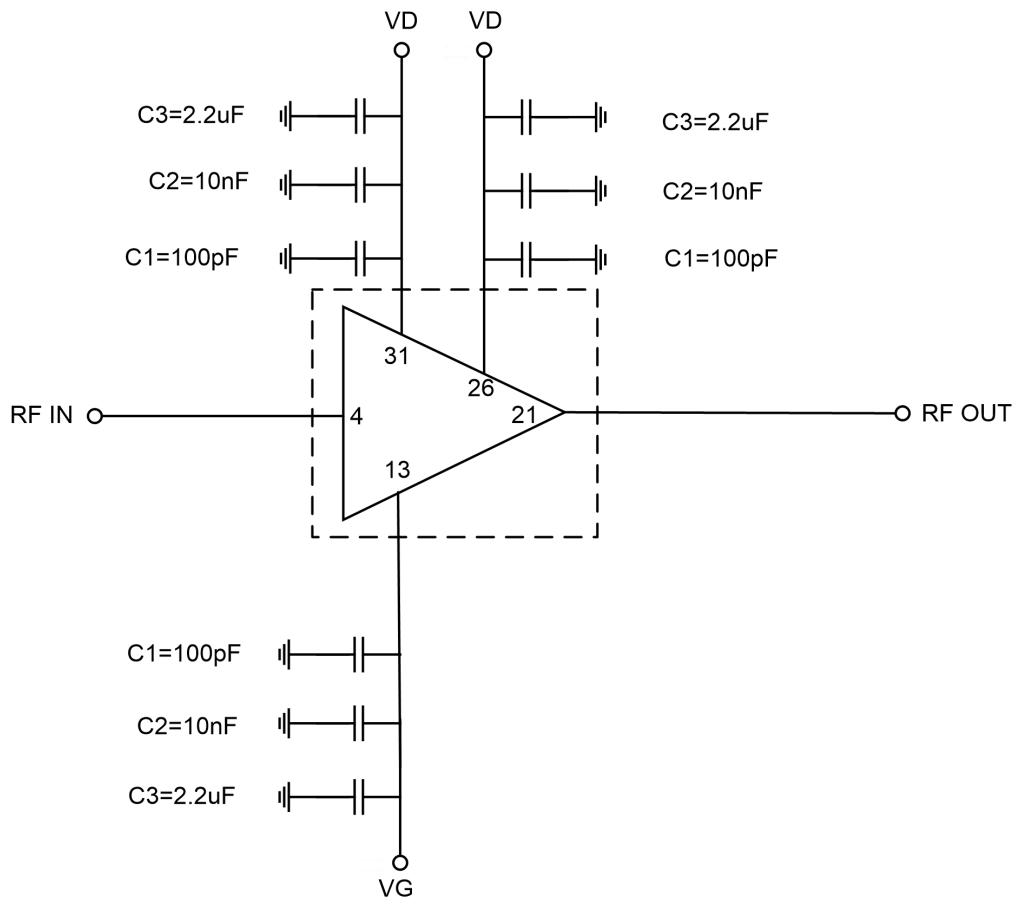
All units in the figures are millimeters .

Pin Definition		
Pin number	Function Symbol	Functional Description
4	RFIN	The signal input terminal is connected to a 50 ohm circuit, and no DC blocking capacitor is required
21	RFOUT	The signal output terminal is connected to a 50 ohm circuit, and no DC blocking capacitor is required
13	VG	Amplifier Gate Bias
2 6 、 3 1	VD	Amplifier Drain Bias
1-3 、 5-9 、 16-20 、 22-25 、 32	GND	The pins need to be well grounded to the RF and DC grounds

Chip bottom	GND	The bottom of the chip needs to be well grounded to RF and DC
Other	NC	No welding required, can be grounded

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Recommended Circuit



Precautions for use

- Sealing material : Ceramic material that meets ROHS standards
- Lead frame material: copper alloy
- Lead surface plating: gold, gold layer thickness 0.3um MIN
- Maximum reflow peak temperature: 260 °C